

**Indicator 24. Percent of Water Bodies in Forest Areas (e.g., Stream Kilometers, Lake Hectares) with Significant Variation from the Historic Range of Variability in pH, Dissolved Oxygen, Levels of Chemicals (Electrical Conductivity), Sedimentation, or Temperature Change**

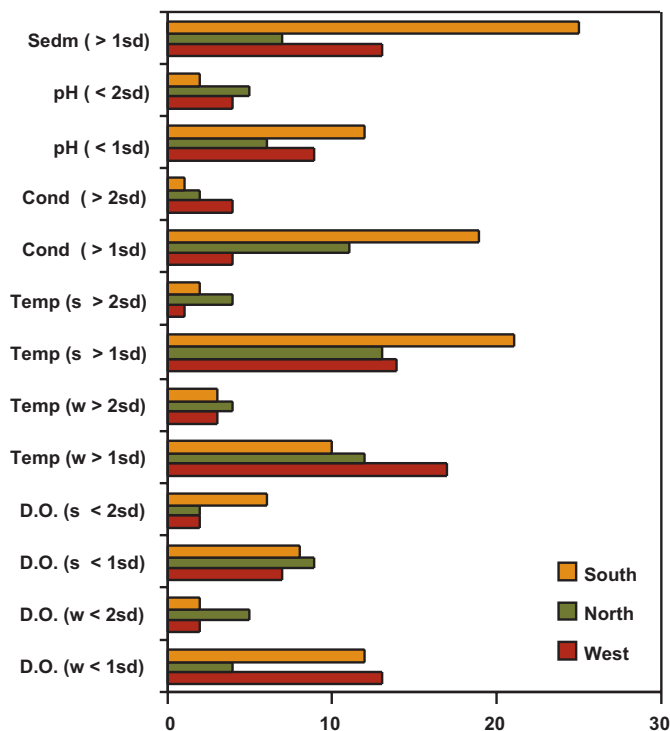


Figure 24-1. Percentage of counties with HUC8 watersheds that were significantly different from other counties within each Resources Planning Act region. (Sed=sediment; pH=water pH; EC=electrical conductivity; T=temperature of water; DO=dissolved oxygen in water; s=summer; w=winter; sd=standard deviation of mean).

### What Is the Indicator and Why Is It Important?

This indicator measures key chemical and physical attributes of aquatic health and water quality. Water temperature (T) is an important aspect of aquatic habitat and influences metabolism, behavior, and mortality of aquatic species. Dissolved oxygen (DO) is essential for most aquatic life. Electrical conductivity (EC) represents the amount of total dissolved salts (ions) in the water. The pH of a water sample measures the concentration of hydrogen ions, and determines the biological availability of nutrients and heavy metals. Sediment (SED) is composed of finely divided solid particles (larger than 0.062 mm) that are transported by wind, water, or ice and deposited in water. Declines in water quality indicated by the above variables often indicate that forest-related management activities and conversions are having adverse effects on aquatic ecosystem health, and are affecting drinking water quality, fisheries, industry, recreation, agriculture, and other uses.

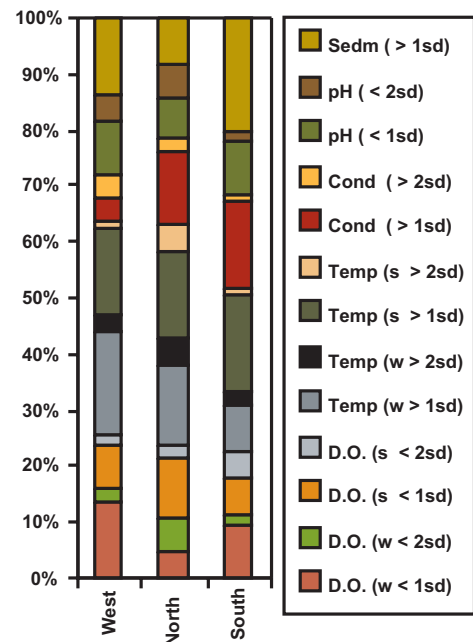


Figure 24-2. The relative contribution of each variable to the effects on aquatic systems within forested watersheds in counties of each Resources Planning Act region.

### What Does the Indicator Show?

Generally, high T, low DO, high EC, low pH, and high SED are indicators of the major problems affecting aquatic systems. Since nationally standardized data is available only since 1990, problem areas were identified by looking at differences in forested counties within a Resources Planning Act (RPA) region, using standard deviations (sd) from the mean as a statistical method to identify abnormal conditions. Greater than 1 (poor) or 2 (bad) sd above or below the mean, depending on whether low or high values were of concern, were evaluated for all indicators. DO and T were the only indicators that showed marked seasonal differences, so values for both winter (w) and summer (s) were given. Each RPA region had a significant proportion (greater than 10 percent) of forested counties in the poor or bad condition. For example, the west region's biggest issues were DO (winter), T (winter and summer), and SED. The north region's biggest issues were T (winter and summer), and EC. The south region's issues were DO (winter), T (winter and summer), EC, pH, and SED.